

CLAIMS

1. A user interface system comprising:

a directional input unit having an operating member, and
5 operable to receive at a point in time an input specifying one
of at least three different directions; in response to a user
operation of touching the operating member;

a calculating unit operable to calculate an amount of change
from a first direction to a second direction, when the directional
10 input unit receives an input specifying the first direction
followed within a predetermined time period by an input
specifying the second direction;

a judging unit operable to judge whether the calculated
amount of change falls within a predetermined range; and

15 a processing unit operable to perform a first process
associated with each of the first and second directions when
the judging unit judges negatively, and perform a second process
associated with the amount of change when the judging unit judges
affirmatively.

20 2. The user interface system according to Claim 1, wherein

when the input specifying the first direction is followed
within the predetermined time period by two or more inputs
specifying directions different from the first direction, the
25 calculating unit calculates the amount of change from the first
to second directions which are specified respectively by the
inputs received first and last within the predetermined time
period.

3. The user interface system according to Claim 1, wherein
one of the directions available for an input to the operating
member is a reference direction and each of the directions is
5 expressed by an angle formed with the reference direction, and
the calculating unit calculates an amount of angular change
from a first angle expressing the first direction to a second
angle expressing the second direction, when the directional input
unit receives the input specifying the first direction followed
10 within the predetermined time period by the input specifying
the second direction.

4. The user interface system according to Claim 3, wherein
each of the directions available for an input to the
15 operating member is expressed by 360° with respect to the
reference direction at 0° , and

the predetermined range is $10^\circ < |\text{amount of angular change}| < 160^\circ$.

20 5. The user interface system according to Claim 1, further
comprising:

a determining unit operable to determine, when the judging
unit judges affirmatively and a process most recently performed
is a first process, a second process as a candidate process to
25 be performed; and

a counting unit operable to keep count of how many times
the determination is made, wherein

when the determination count reaches a predetermined

number, the processing unit performs second processes associated with the respective amounts of angular change having been calculated for making the determination.

- 5 6. The user interface system according to Claim 1, further comprising:

a determining unit operable to determine, when the judging unit judges negatively and when a process most recently performed is a second process, a first process as a candidate process to
10 be performed; and

a counting unit operable to keep count of how many times the determination is made, wherein

when the determination count reaches a predetermined number, the processing unit performs first processes associated
15 with the respective directions having been received for making the determination.

7. The user interface system according to Claim 1, wherein

when the input specifying the first direction is followed
20 within the predetermined time period by no input specifying another direction, the processing unit performs a first process associated with the first direction.

8. The user interface system according to Claim 1, wherein

25 the directional input unit includes:

a resistive layer formed on an insulating substrate;

a conducting member formed on a planar substrate facing the resistive layer across a predetermined insulating gap; and

the operating member used to bring the resistive layer partially into contact with the conducting member, wherein
in response to a user operation of touching the operating member under a condition where a predetermined voltage is applied
5 to the resistive layer, the insulating substrate and the planar substrate are brought partially into contact, so that an input specifying a direction is received based on a voltage conducted as a result of the partial contact.

10 9. The user interface system according to Claim 1, further comprising:

a display unit operable to display (i) a group of options in an annular array, and (ii) a selected position movable to any of the options to indicate that the option is currently focused
15 or selected; and

a storage unit operable to store a first table and a second table, the first table associating the individual directions with the options, and the second table associating the individual amounts of change with movement directions and amounts of the
20 selected position, wherein

when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first process, so that an option associated with each direction input to the directional input unit is focused or selected, and

25 when the judging unit judges affirmatively, the processing unit refers to the second table to accordingly perform the second process, so that the selected position is moved in a movement direction and amount associated with the calculated amount of

change.

10. The user interface system according to Claim 1, further comprising:

5 a display unit operable to display a plurality of files and folders in an annular array; and

 a storage unit operable to store a first table and a second table, the first table associating the individual directions with the files, and the second table associating the individual
10 amounts of change with movement directions and amounts of a selected one of the files, wherein

 when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first process, so that a file associated with each direction input
15 to the directional input unit is selected, and

 when the judging unit judges affirmatively, the processing unit refers to the second table to accordingly perform the second process, so that a currently selected file is moved in a movement direction and amount associated with the calculated amount of
20 change and placed into a folder if the selected file is moved to where the folder is located.

11. The user interface system according to Claim 1, further comprising:

25 a display unit operable to display an image of a dial on which a group of letters are arranged in an annular array; and

 a storage unit operable to store a table associating the individual amounts of change with rotational directions and

amounts of the dial, wherein

when the judging unit judges negatively, the processing unit performs the first process, so that each input to the directional input unit is discarded and causes no text input,
5 and

when the judging unit judges affirmatively, the processing unit refers to the table to accordingly perform the second process, so that the dial is rotated in a rotational direction and amount associated with the calculated amount of change and that text
10 of a letter placed at a predetermined position as a result of the rotation is input.

12. The user interface system according to Claim 1, further comprising:

15 a playback unit operable to play content with audio; and
a storage unit operable to store a first table and a second table, the first table associating the individual directions with processes to be performed, and the second table associating the individual amounts of change with levels of audio output
20 of content targeted for playback, wherein

when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first process associated with each direction input to the directional input unit, and

25 when the judging unit judges affirmatively, the processing unit refers to the second table to accordingly perform the second process, so that the content is played with audio output at a level associated with the calculated amount of change.

13. The user interface system according to Claim 1, further comprising:

a playback unit operable to play content; and

5 a storage unit operable to store a first table and a second table, the first table associating the individual directions with processes to be performed, and the second table associating the individual amounts of change with speeds at which content targeted for playback is fast-forwarded or rewound, wherein

10 when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first process associated with each direction input to the directional input unit, and

when the judging unit judges affirmatively, the processing
15 unit refers to the second table to accordingly perform the second process, so that the content is fast-forwarded or rewound at a speed associated with the calculated amount of change.

14. The user interface system according to Claim 1, further
20 comprising:

a display unit operable to display (i) a chart composed of options in an array and (ii) a selected position movable to any of the options to indicate the option is currently focused or selected; and

25 a storage unit operable to store a first table and a second table, the first table associating the individual directions with movement directions of the selected position, and the second table associating the individual amounts of change with scaling

factors by which a displayed part of the chart is scaled up or down with the selected position as a center, wherein

when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first process, so that the selected position is moved in a movement direction associated with each direction input to the directional input unit, and

when the judging unit judges affirmatively, the processing unit refers to the second table to accordingly perform the second process, so that a displayed part of the chart is scaled up or down by a scaling factor associated with the calculated amount of change.

15. The user interface system according to Claim 1, further comprising:

a display unit operable to display a map and a cursor; and a storage unit operable to store a first table and a second table, the first table associating the individual directions with movement directions of the cursor on the map, and the second table associating the individual amounts of change with scaling factors by which a displayed part of the map is scaled up or down with the cursor as a center, wherein

when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first process, so that the cursor is moved in a movement direction associated with each direction input to the directional input unit, and

when the judging unit judges affirmatively, the processing

unit refers to the second table to accordingly perform the second process, so that a displayed part of the map is scaled up or down by a scaling factor associated with the calculated amount of change.

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16. The user interface system according to Claim 1, further comprising:

a managing unit operable to rank and manage a plurality of options;

10 a display unit operable to display a group of options in a spiral array, the group including a predetermined number of options of consecutive ranks out of the plurality of options managed by the managing unit; and

15 a storage unit operable to store a first table and a second table, the first table associating the individual directions with the currently displayed options, and the second table associating the individual amounts of change with numbers by which a ranking range of the currently displayed options are to be shifted, wherein

20 when the judging unit judges negatively, the processing unit refers to the first table to perform the first process, so that an option associated with each direction input to the directional input unit is focused or selected, and

25 when the judging unit judges affirmatively, the processing unit refers to the second table to perform the second process, so that another group of options is displayed, said another group including consecutive options within a ranking range shifted from the current ranking range by a number associated with the

calculated amount of change.

17. The user interface system according to Claim 1, further comprising:

5 a display unit operable to display an image of a vinyl record;
 a storage unit operable to store a first table and a second table, the first table associating the individual directions with sounds, and the second table associating the individual amounts of change with scratch sounds; and

10 an output unit operable to produce audio output, wherein
 when the judging unit judges negatively, the processing unit refers to the first table to accordingly perform the first processes, so that the output unit produces a sound associated with each direction input to the directional input unit, and

15 when the judging unit judges affirmatively, the processing unit refers to the second table to accordingly perform the second process, so that the output unit produces a scratch sound associated with the calculated amount of change.

20 18. A program for use by a computer having an operating member and a directional input unit that is operable to receive at a point in time an input specifying one of at least three directions, the program comprising code operable to cause the computer to perform:

25 a calculating step of calculating an amount of change from a first direction to a second direction, when the directional input unit receives an input specifying the first direction followed within a predetermined time period by an input

specifying the second direction;

a judging step of judging whether the calculated amount of change falls within a predetermined range; and

5 a step of performing a first process associated with each of the first and second directions when the judging unit judges negatively, and performing a second process associated with the amount of change when the judging unit judges affirmatively.

10 19. A computer-readable medium storing a program for use by a computer having an operating member and a directional input unit that is operable to receive at a point in time an input specifying one of at least three directions, the program comprising code operable to cause the computer to perform:

15 a calculating step of calculating an amount of change from a first direction to a second direction, when the directional input unit receives an input specifying the first direction followed within a predetermined time period by an input specifying the second direction;

20 a judging step of judging whether the calculated amount of change falls within a predetermined range; and

a step of performing a first process associated with each of the first and second directions when the judging unit judges negatively, and performing a second process associated with the amount of change when the judging unit judges affirmatively.

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